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### Original Articles

#### FATIGUE AND EXHAUSTION. REMARKS ON PHENOMENA AND ENERGY RENEWALS.

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A HEALTHY body, the mind being the main part, renews itself after work, completely under favorable conditions, and incompletely under disadvantageous ones. Work, performance of function, is essential to structural integrity. Play is a normal part of the day's doings, not a thing apart nor capable of being omitted with safety. Play in young or old reflects or mimics the acts of war, the chase, industries, domestic doings and the like. Play is change and supplies the major condition for energy renewals and is only second in importance to rest.

The most agreeable work is the least fatiguing. Any work can and should be made more or less agreeable. The pleasurable of effort depends entirely on the mental attitude of the person making it. Even the severest and most repugnant of toil is capable of being immensely lightened by improvement in the point of view taken and held.

Of course much depends upon those who im-

mediately direct and control. Since most forms of industry involve managers, foremen, "bosses" who are also themselves workers, this golden rule of mutuality obtains all along the line from the bottom to the top. Overseers of work cannot afford to omit their part in contributing to the output, not only of material but of comradeship. The director may not safely remain too far away to be fully aware of what goes on.

The cycle of efficient energizing is thus conditional upon a fundamental law of economics which obtains for every single industrial unit. The law or principle of coöperative action is so obvious it should need little proof or illustration. Attention, however, should be directed to it from time to time. Coöperation should be writ large in every factory, workshop, office and director's room, especially. No one is exempt from the obligation to work. When work as a privilege becomes a part of human habitudes, and is accepted by each and every human being, there need be no labor troubles except such as are based on considerations for the comfort of the laborer or the amount and quality of output.

The one practical method of obtaining universal industrial contentment and efficiency is obviously for capitalists to study and apply those conditions found capable of best main-

taining the welfare and cheerfulness of workers. Such questions as length of hours of work come directly under this head (of mutualization), and much is now known and being learned by scientific research of the quality of muscle and brain fatigue as effected by environmental conditions. Man must learn to dominate his environment, not be dominated by it, or he fails on the first step in the ladder of adaptation.

The chief difficulty in acting in full accord with economic facts lies in pitiful obstinacies and prejudices, occasionally (too often) shown by both capital on the one side and labor on the other. There is no more separateness between capital and labor than there is between mind and body; they are each one and the same, indivisible; they cannot be set apart even for purposes of full description. One is dead without the other. And the crux of production is the question of fatigue.

Fatigue may be described as the evidence or result of strained attention, in which the factors are partly mental or emotional weariness. It is chiefly due to protracted overuse of motor mechanism, but eye strain and brain strain are shown long before the effects of muscle strain.

Exhaustion is fatigue carried to a point where spontaneous restitution fails to follow, and the structures—cells and fluids—suffer injuries more or less serious and irremediable.

The phenomena of fatigue are due to the formation of waste products in the cells which require to be gotten rid of as promptly and completely as possible. While they are present the normal action of the cells is interfered with more or less, shown by diminutions in accuracy of sensory responses, of cellular adjustments, of structural efficiencies, of nervous and mental control, in short, of impairments in precision of action and reaction, hence interaction and equilibration.

These include always losses in control of parts, as well as niceties in the working action (psycho-physiology) of those parts. So powerful is the effect of the mind and emotions on work that fatigue feelings begin, as a rule, long before the structures are materially affected.

Hence appeals to the emotions, to the sense of loyalty, or to ambition, or to the mere sensory impulses, will arouse one to renewed or even greater effort, and this can be sustained for periods consonant with the amount of resistant energy present.

Fear also is capable of producing similar results. A break in monotony of a pleasurable kind, the introduction of some personal encouragement by a boss, or better, by a member of the firm, or, best of all, by a visitor who is interested in the kind of work being done, will rouse flagging energies toward the middle of an afternoon. Music played so that all the workers can hear it is immensely helpful, and this is supplied as energy tides subside in some large department stores.

Since continued fixed attention upon any form or kind of labor is the most fatiguing factor, a brief change from action to rest, or from a cramped position, a continuity of eye strain, etc., to rapid movement, promptly sets up and reinvigorates one.

The primary and predominant factor in practically all forms of recreation is the mental and emotional (psychical) stimulus afforded. All play for young and old, as has been said, reflects in some kind or degree primitive industries, war, the chase, joy, triumph, mourning. A change being wrought in the emotions will effect vastly more than mere cessation of fatiguing motions. Whatever diversions or amusements produce promptest, most satisfactory effects on both mental and physical states are precisely those in which the psychical impression is the strongest. The primary requisite for what may be termed successful recuperation is a complete diversion from self-attention, a submergence of self-consciousness which sets aside and checks that persistent introspection of our physical selves,—the foundation of half the morbidity of the world.

Whatever one does for the sake of the doing, or for one's own advancement or higher satisfaction, is closely akin to recreation. Some charm is always to be discovered in one's work capable of supplying this need. Certain ideals of accomplishment are always possible to be formulated or reached, capable of giving a lot of satisfaction. You will notice the best work people in any line are those who take a pride in showing how well they do their work and what results they get,—whether they definitely contrast their own with another's may not appear; the implication is obvious, however: they regard themselves as superior.\*

Ideals of work—"the points of a good job"

\* I was present when Charles Schwab made his first address to the workers at Hog Island Shipyard. He has a marvellously sympathetic personality and swept all the men into his heart by declaring: "I have worked with thousands of men, but no man ever worked for me."

—Richard Cabot says, should be taught in the course of any or all forms of primary education.

By the same token, appreciation by another, by an employer, by the public, amplifies capacity for effort. Rest which follows is more complete, zeal is maintained; so are nutrition, elimination, and health appreciably enhanced.

The first effect of work on a muscle is to increase its activity, a "warming up" process. This is due partly to the formation of waste products ( $\text{CO}_2$ , lactic acid, acid potassium phosphate, etc.), which in moderate amounts stimulate muscle action. In too large amounts they act as poisons, causing feelings of fatigue, not only in the muscles but all over the body and brain. Herbert Spencer, a delicate, frail man, tells how he was able to dictate certain of his great works for fifteen minutes only, then row in a boat for fifteen minutes, and rest lying down fifteen minutes—then beginning again to dictate.

Mental influences on work are both excitatory and inhibitory. Every one knows how enthusiasm to accomplish a bit of work will carry one far beyond one's ordinary capacity for effort or endurance, and no harm done. Also how, while in the full flood of comfortable toil, a distressing bit of news, an unkind word, a cause for anger will interrupt the flow of energy, diverting or checking it to other channels, being followed by motor and other functional confusions, hence weariness and disease.

Competition with another or with one's own standards of achievement is excitatory. Such stimulation must be just enough and not too much, however; must urge one only to a degree fairly well within one's capacities. If too severe a struggle is aroused, or if too lofty ideals are formed, discouragement follows. By attempting the impossible, effort may be killed. It is well, as accomplishment improves, to raise the standard gradually. This is notably the case in athletes, race horses, and in other forms of exciting competitions.

Pain is a familiar inhibitory influence. Long-continued use of the muscles causes pain, "a feeling of fatigue"; similarly, of slight shocks. Example: In walking, one falls, bumps the back or the head, or twists an ankle. Instantly all energy seems to ooze out, one wishes to sit or lie down. The primary effect of

this inhibition is an instinct of survival values, to check the use of damaged parts till repaired.

So largely does the psychic shock overtop the physical in most instances, the necessity being to get home, to a place of safety, that one is impelled to make the effort to do so, and likely as not walks well enough to go miles and usually suffers no ill effects whatever. Contrast with this the danger of too complete disregard of injury—delayed shock. "An idea," says Meyer Solomon, "may lead to a transient reaction in the voluntary nervous system. Whether to the voluntary or the vegetative system, the symptoms are due to something else. We may look upon the effects of shock, of emotion thus: If we view the development of the mind and nervous system from the highest functions down, we find the highest function is critical consciousness; then comes observing or passive consciousness, then ideational phenomena, then locomotor and postural phenomena, next vegetative reactions, and finally lowest are the physico-chemical reactions."

The "second wind" is a familiar example of subordination of primary fatigue phenomena. A man out of condition and in middle life cannot depend on this saving grace of a latent second wind so confidently as a youngster. Yet it is there just the same and can be depended on, provided too great speed or excessive and hurried effort be not made. Most older men have half forgotten the delightful exhilaration of "getting your second wind," then sailing forward under the magic renewal of what seemed exhausted forces. The sensations of pushing oneself to the suffocation point in middle-aged sedentary persons is far more distressing than for one who has kept up some activities. The old or middle-aged heart muscle does deteriorate, but not enough to worry about; it will respond satisfactorily if gradually and judiciously trained.

Here we have not only a gradual readjustment of all organic activities to counteract the oyster-like lethargy, the "sit by the fire" existence of one who has ceased to realize that every man is built for, and hence enjoys, motion, locomotion, even commotion.

So when taking an unusually long and rapid walk, or bicycle ride, or when rowing or paddling against a head wind or any other sudden and severe call on long disused muscles,

they cry aloud, rebel. Suddenly it seems as though a vise had closed in on the chest; that the bellows had jammed; the air supply been cut off; in short, we are about to die. The heart pounds away like a sledge hammer and induces fear. (By the way, thus do sufferers from angina pectoris feel in a paroxysm, only a hundred times worse. Nor can that be compensated; only relieved artificially.)

Now this is what happens: The muscles have used up their oxygen and produced CO<sub>2</sub> faster than the heart and lungs can supply the one and remove the other. Circulation and respiration immediately respond by doing all they can, but fail to keep pace with the unusual demands made on them; they are out of the habit of being so outrageously hurried. However, by easing up a little,—it is not essential to stop (often one can't, e.g., paddling a canoe in a squall, hence one must "spar for time")—till the "blessed second wind" comes. By the way, I wonder why Hiawatha in his eulogies of the different winds, notably the life-giving "south wind," omitted paying tribute to this so vital "second wind"?

The terrifying effect of air hunger (*besoin de respirer*) is not to be ignored by the middle-aged, out-of-condition, or sedentary person. Safe enough it usually is, provided the organism, though a bit worn out, be essentially sound. After an illness wherein the heart has been weakened, as in any infection, grave peril lurks; also after one or more severe strains, as business or domestic anxieties. In the experience of all physicians, catastrophes follow disregard of reasonable and necessary care after the commonest of infections—influenza. Too often the captain of industry bluntly affirms that "it is all rubbish to go to bed" or to stay away from his "important affairs" for a "mere trumpery cold." Many a valuable life has flickered out abruptly by indiscretions in effort, in anger, in attending some function when *exhausted* by long strains plus an attack of cold or sore throat (especially a tonsillitis).

A good test of one's "condition" is how soon hurried breathing and a thumping heart quiet down on resting. If these pumps and bellows are so greatly impeded as to cause distress, then lie flat down on the back and rest the legs on an object some fifteen or twenty inches above the heart, to encourage by gravity the back flow.

A peril which constantly threatens some persons is "fatigue anesthesia." This results from so long and habitual disregard of sensory and other fatigue phenomena as to become insensible to them. The governor is removed from the human engine, and it may readily come to grief. Thus it is repeatedly made plain how well worth while it is for any one to keep in moderate condition, and especially so as middle age approaches. So long as primary elasticity and compensatory power remain, so long as all goes smoothly, the middle-aged person "feels well" and can see no need for "monkey stunts," absurd disarrangement of his peaceful routine, all "waste of time" (it is mostly laziness); hence he contemptuously declines to "exercise."

Just as much to be deplored are such acts of folly as these: The desk worker, the man who takes no rational recreation, except late suppers and "bracers," suddenly experiences a change of heart and rushes off on a hunting trip for which his manner of life has utterly disqualified him. Thereupon he does all he is able to do and "then some" more, all in a limited space of time. He eats unaccustomed food, sacrifices creature comforts and does himself vastly more harm than good. A month of moderate preparation would have made what was a mere frantic perilous episode, one of real delight and value.

Brain workers differ from muscle workers in that they do not consume so much fuel and hence accumulate far less body poisons. Mental fatigues come more slowly. Cerebral tissues are subject to same excitatory and inhibitory influences from toxins, but readjust themselves more readily. The brain worker is, however, seldom altogether free from some exhausting muscle work,—protracted tension from cramped postures, of head, neck, back, hands and shoulders. Especially are the eyes overworked and congested. Brain workers are liable to ennui, to mental distraction, to mind wandering. The impulse is to get up and move about, to do something different, to loosen up the cramped structures. Hence the sensations of fatigue differ in kind and also in degree from muscle workers. He needs rest and change just the same, even more so if elements of worry, heavy responsibilities accompany. The depletion of nerve cells is much the most exhausting. Nothing refreshes so promptly as rational, brief motor discharges.



The key to rest is relaxation of mental over-tension, a letting go of strained attention. Where such states have become habitual, my experience is that simple primitive movements are best—partly under direction and partly spontaneous, such as gardening, carpentering, the use of any tools, artistic, scientific or industrial. Permit me to commend the punching bag here as a means for working off righteous indignation and of achieving a beneficent aggressiveness.

Alternation of action and relaxation are best. Brief siestas, even lying down quietly, will often markedly improve the character of mental work immediately afterward. So also of limiting the variety of things done.

System in work and play is equally desirable. Night workers find difficulty in securing sleep during the day—they meet too many distractions.

After sleep, a period of blessed inertia often follows, especially if it be deep. Thereupon one needs a period of "warming up"; of active motions to get on one's energy level again.

Periods of normal variations in energy occur,—diurnal variations in working capacity. The maximum is at 10 a.m.; this then declines till 4 p.m.; again a secondary partial or relative maximum at 10 p.m., after which ensues a period of lowest decline at 3 a.m., at which time most deaths from exhaustion and old age occur.

As to when the best output of product can be achieved by brain workers, there are some differences from experience. Some do their best work at night, after the distractions of the day have ceased. Systematic healthy brain workers do best in the forenoon.

Throughout the day there are to most persons periods of restful inaction forced upon us by others, such as waiting for men to keep appointments, waiting for trains, for means of transportation. These are useful only in proportion as we remain serene and can keep ourselves from emotional strain or peevishness. Dislocation of one's plans are often capable of proving agreeable, as pleasant surprises. The time one is called upon to entertain friends is too often resented.

Some men achieve double results, *e.g.*, a tennis champion of England for many years had four or five shops which he visited constantly, yet he got in a walk, or a run or a few min-

utes' leg or arm exercise and was always ready for a match.

Probably no higher physical happiness is attainable than by a judicious commingling of well-earned weariness compensated by equally judicious energy renewals.

#### A FURTHER NOTE ON SCARLET FEVER CARRIERS.

By D. M. LEWIS, M.D., NEW HAVEN, CONN.,  
*Epidemiologist, Board of Health.*

In two previous articles on scarlet fever, attention was called to demonstrable carriers, as well as to the morphological streptococcus which was shown to have a value in the confirmation of diagnosis of both case and carrier. The ability to find carriers during the first days of their recurrent sore throats makes impossible the otherwise immediate following contact with susceptibles; similarly, the finding of the carrier in connection with a reported case in the family, house or neighborhood has been the means of preventing further cases. These two factors, at basis one, in the face of the absence of the usual waves of frequency of the disease, and especially in the absence of deaths as well, are reasonable proof of the ability to control the disease. For the reason of continued confidence, further instances of the specificity of demonstration of carrier and micro-organisms are warranted. The more so that since the appearance of the previous articles mentioned, other observers have confirmed the value of cultures, but have done so to the exclusion of the specific streptococcus. Release of cases and observation of cases by means of all streptococci misses the two important points: first, the clinical manifestations of tongue and throat and secondly, the specific gram-negative chained streptococcus. The fallacy of not differentiating the varied streptococci is especially worthy of attention as to the diagnosis of contact cases, as I have recently shown.

The following case should be of interest: On March 25, 1918, A. M., age 24, was reported by the Isolation Hospital as a case of scarlet fever. Investigation of the premises from which he was taken gave a house across the street from a munition plant filled with some forty odd young men attached to the Aviation Corps, resident there three weeks, previous to which

they had been in Kelly Field. Examination of the tongues and throats of these individuals showed one, C. H. S., whom I reported to the physician in charge as definitely a carrier, and as such should be isolated. The physician two days following sent me 8 cultures. Of these, one only showed the specific streptococcus, which was later identified as from the throat

throat, although the tonsils had been excised. At first, the mother denied any immediately previous illness in the family, but later acknowledged that one week previous the girl mentioned had had a sore throat for 2 days, one of which was spent in bed, and for which the family physician had left medicine. A throat culture gave the streptococcus S. I

## Scarlet Fever - 1914.

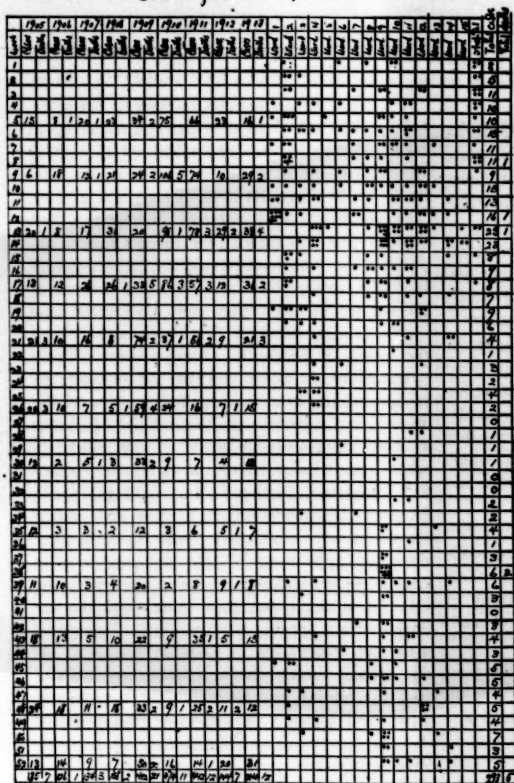


CHART 1.

of C. H. S. With his restriction, the remainder were allowed full freedom and no further cases ensued.

The second instance merits attention from the seasonal onset: P. H., age 2, reported a case on August 6, 1918, was one of three children in a six-family house. Of two older sisters, one age 8, showed a tongue and recent

## Scarlet Fever - 1915.

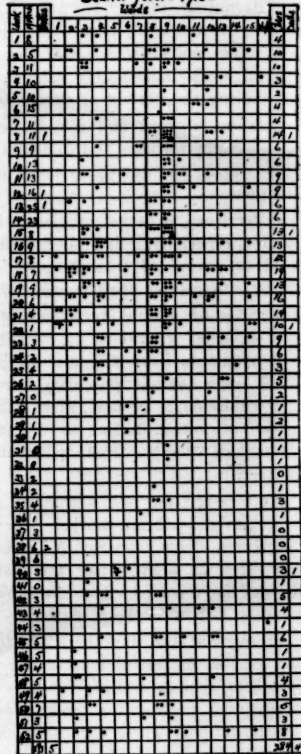


CHART 2.

have a knowledge that it is by nailing such carriers early in the season that we prevent the occasional later case. By nailing the nasal type during the seasonal prevalence we stop the epidemic proportions. The following is typical: D. C., age 5, was clinically a convalescent carrier, after being a mild missed case found on the report of her sister, J. C., age 8,

on April 3, 1918. On April 19 the case was released as non-infectious, whereas the carrier now seen for the first time since the report of the case, showed a bilateral anterior sero-purulent nasal discharge. It had been present for one week, resisting medical treatment. Parenthetically, it is worthy of mention that the treatment as used and described in A Study of

1918. The following day the parent appeared for a permit. A visit to the house showed the discharged patient with a characteristic tongue and a purulent nasal discharge. Culture showed the specific streptococcus, and it was not until April 8 that the nose and tongue were normal.

The appended charts of reported cases well

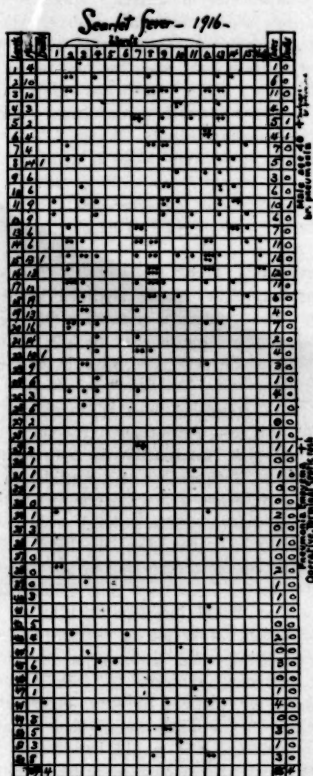


CHART 3.

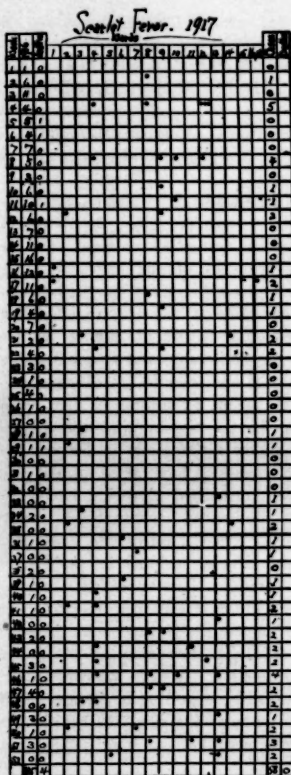


CHART 4.

Diphtheria Carriers effects the same cure. Cultures showed the streptococcus S.

How easy it has been for a convalescent carrier to spread infection by the old method of mailing a school permit any time after the hospital discharge is illustrated by the following: A. C., age 5, admitted February 5, 1918, was discharged well from the hospital March 2,

illustrate how effective has been the measure of control from my demonstration of carriers as found during 1914 and 1915, and applied from 1916 on. A chart for the half year of 1918 is a counterpart to 1917, except that there have been 28 cases reported, as against 23 in 1917. The charts show cases by weeks and by city wards, save for the years previous to 1914.

when the only obtainable record was by months.

#### SUMMARY.

Recognition by clinical signs and by cultures of carriers is the dominant problem in the control of scarlet fever; the isolation and treatment of the carriers bears the same relation to the control of the disease as the diphtheria carrier does to the control of diphtheria.

### TREATMENT OF "ESSENTIAL" FACIAL NEURALGIA BY LOCAL ALCOHOLISATION.\*

BY PROF. J. A. SICARD, M.D., FRANCE,  
Chief of the Neurological Centre for the XV<sup>e</sup> Region,  
France.

THE treatment of trifacial, the so-called "essential" neuralgia, by "local neurolysis," has stood the test of experience. The destruction of branches of the nerve by means of chemical substances, more particularly alcohol, introduced directly *in situ*, remains the only really effectual treatment, taking the place of the old physiotherapeutic and surgical methods.

My object has been to act directly upon the nerves by means of substances that either destroy or fix the tissues, and the method has proved highly satisfactory in respect of pain. Of such agents I have tried osmic acid, the chromates, formalised glycerine, carbollised glycerine, alcoholised mentholated glycerine, chloroform, ether, antipyrine, salicylate of soda, and salts of quinine in various proportions and doses. None appeared altogether satisfactory; either it was injurious to the neighbouring tissues, or, if innocuous, it was inoperative. I have now adopted alcohol as the chemical agent of election, varying in strength from 70° to 95°, according to the age of the subject, the tonus of the skin, the healthy state of the eyelids, conjunctivae, nasal mucosae, and so on.

*Anatomy of the Trifacial Nerve.* The fifth pair of cranial nerves, the trifacial, comprises three principal trunks: the ophthalmic, the superior maxillary, and the inferior maxillary. The ophthalmic subdivides into three terminal branches, the superior maxillary into six, the more important of them being the superior dental and the infraorbital; the inferior maxillary splits up into seven branches, the two

most important being the inferior dental and the lingual. These various trunks of peripheral branches find their way through foramina, canals, and notches either at the base of the skull or through the facial bones. It is these which we have to reach for the purpose of local alcoholisation.

There are three stages of neurolysis: superficial, medium, and deep.

The superficial or anterior stage is represented by the ophthalmic nerve where it emerges through the supra-orbital hole or notch, by the infra-orbital and the mental branch. The medium stage comprises Spix's spine (origin of the inferior dental canal) and the posterior palatine canal.

The deep or posterior stage is made up of the sphenoidal fissure (ophthalmic nerve), the foramen rotundum (superior maxillary nerve), and the foramen ovale (inferior maxillary nerve).

*Description. Local Anaesthesia.*—The operative procedure has to be modified in certain details for each foramen or canal to be injected. It is absolutely necessary to be able to introduce the needle with precision in the midst of this bony facial architecture, which is naturally very irregular, and is, moreover, subject to individual variations. The only way to achieve this familiarity is to repeat the operation as frequently as possible on the cadaver. Here are a few general precepts for the living subject. As a general rule the patient should be lying down, the head inclined in the position most favorable to the injection; maintain under gauze any hair, moustache, or bristles that would interfere with one's freedom of action. Make use of tincture of iodine for local disinfection. It may be desirable in certain nervous subjects to induce general anaesthesia by the aid of ethyl chloride, but this leaves one a minimum of time to attain one's object, and one would have to be very sure of one's whereabouts in order to obviate the risk of a useless intervention.

In the vast majority of cases I obtain local anaesthesia with *novo* or *stovo*-cocaine, 1 per 100 (half a centigramme each of cocaine and *stovaine* per c.c.). The needle can be introduced with a minimum of pain if, after anaesthesia of the integument, it be pushed slowly into the depths of the tissues, anaesthetic in hand. In the course of some hundreds of injections I have never on any occasion wit-

\* Reprinted from the *Medical Press and Circular*, July 24, 1918.



nessed anything of the nature of syncope, even after employing as much as 8 c.c. of the above solution sterilised at 100° C. for five minutes. I have abandoned the use of adrenalin, because it seemed to me to predispose the patient to the development of oedema, or even necrosis. With regard to the syringe and needles, I prefer an all-glass syringe and a platinum needle of small calibre from 3 to 6 centimeters in length.

*Strength and Quality of Alcohol to be Injected.*—The quantity of alcohol to be injected should not exceed 1.5 c.c. (a cubic centimetre and a half), and the strength varies from 70 to 95 per cent. For facial neuralgia involving the three branches, we can at one sitting inject the whole superficial ophthalmic and infra-orbital regions and the mental branch, and at a second sitting, three or four days later, inject the foramen rotundum and foramen ovale. If the patient has been in a hurry I have sometimes made the five injections, superficial and deep, at the same sitting. There is no fixed rule in this respect. The choice, the number, and the repetition of the injections is subject to this or that localisation or generalization of the pain, to the mildness or the severity of the consequent oedema, and so on.

The pain of the neurolysing injection can never be wholly prevented or overcome, but it can be reduced to a minimum by waiting four or five minutes after the deep injection of stovocaine before injecting the alcohol. The pain is comparatively less in the infra-orbital canal and foramen rotundum; it is more severe in the foramen ovale, and still more so in the supra-orbital and mental foramina.

*Accidents to be Avoided.*—We must be careful not to inject the alcohol into a blood vessel, otherwise the precipitated matter of the blood would block a whole vascular region, and would expose us to the risk of inducing gangrenous necrosis of the particular area. I have seen cases in which the result has been necrosis of the palatine bone with elimination of bony sequestra. As a rule the sphacelus, limited to the cellulose-cutaneous tissues of the face, heals in the course of a few weeks, leaving a scar which is often very disfiguring. Consequently, should blood pass by the needle, it is preferable either to postpone making the injection of alcohol until another day, or only to inject the alcohol deeply with a constant and fro movement of the needle.

I have also witnessed the production of ocular paralyses lasting from some weeks to several months, but invariably curable, after injections of the foramen rotundum, and even, curiously enough, after injection of the foramen ovale. The external oculo-motor nerve is almost invariably the one involved in either case.

To avoid ocular paralysis we must wait, after injecting the cocaine into the foramen rotundum or ovale, four or five minutes before making the alcohol injection. Should the anaesthetic fluid come into contact with the dangerous zone of the ocular nerves, there will be diplopia, in presence whereof the needle is withdrawn. Cocaine diplopia, however, is very ephemeral.

Facial paralysis, which is of rare occurrence, is due to an error of technique, a wrong direction having been given to the needle in passing through the foramen rotundum.

Facial erysipelas is of very rare occurrence, but may not be attributable to a lack of asepsis. The attack may be due merely to the awakening of streptococci lying dormant in the tissues.

*Operative Sequelae.*—The oedema and swelling of the tissue are immediate, and persist until the second day. The areas most liable to oedema are the infra-orbital, and especially the supra-orbital. The globe may be hidden by the palpebral infiltration, and we may even remark a certain degree of chemosis after the injection at one sitting of the supra and infra-orbital foramina. In spite of the tremendous swelling, however, there is no cause for anxiety, for everything clears up in a week or two. I merely direct the patient to wash the parts with tepid boiled water every two hours. It is unnecessary and even dangerous to bandage the eye. In two cases I have seen ulcerative keratitis supervene after dressings left *in situ* for 24 hours, due to the escape of a drop or two of carbolic glycerine from the foramen finding its way into the conjunctival cul-de-sac.

*Conditions Indispensable to Success.*—I. The intervention is limited to cases of true facial neuralgia of the so-called "essential" variety.

1. Whenever the pain in facial neuralgia persists continuously with no distinct intervals of relief it is not a case of "essential" neuralgia.

2. Cases of facial neuralgia which, not having been already treated surgically or by local

injections, are accompanied by cutaneous or mucous anaesthesia, are not cases of "essential" neuralgia.

3. When facial neuralgia, previous to any intervention, presents associated signs of stimulation or paralysis of other cranial nerves, such, for instance, as trismus, diplopia, facial paralysis, lingual hemiatrophy, etc., it is not a case of so-called "essential" facial neuralgia.

4. A case of facial neuralgia which, *ab initio*, involves the three branches of the trifacial, is not a case of "essential" facial neuralgia.

In these cases we are dealing with secondary facial neuralgia of either exo- or endocranial origin, *e.g.*, syphilis, tuberculosis, cancer, abscess, sinusitis, etc. In these the injection of alcohol, far from affording relief, may, on the contrary, aggravate matters. Nor is it of service in neuralgia following herpes zoster of the trifacial, for this is not a peripheral lesion.

II. We must make sure of reaching the nerve branches responsible for the pain. Cutaneous or mucous anaesthesia of the area innervated by the injected nerve is the only evidence we can have of a successful injection. This should supervene directly after the injection, and is accompanied by a sensation of induration and swelling, in reality non-existent. These disturbances of sensation are very varied and peculiar.

Short of permanent anaesthesia, the period of quiescence lasts from a few days to several weeks. The deeper, the more intense and total it be, the more protracted the relief. The anaesthesia lasts, as a rule, three or four months. Tactile sensation is the first to return, then the sensation of heat, and, finally, pain.

Two or three days after the injection, the patient is apt to get a little itching in the anaesthetised area of the "pins and needle" type. This surprises the patient, who finds himself scratching an insensitive area of skin.

*Results.*—The results are really remarkable in all cases of true "essential" facial neuralgia. Success is certain when the alcohol has really destroyed the branches or nerve trunks responsible for the pain. Out of several hundred patients thus treated I remember only two, in which, after perfect regional anaesthesia, the pain persisted. One of these patients has

since been operated upon surgically, but still without success. The more familiar we become with the method the greater is the measure of success that follows our intervention; in fact, the only possible cause of failure is the inability of the operator to reach the nerve trunk with his needle. In such case it is not the method but the operator that is at fault.

It must be admitted that in certain, happily rare, subjects the introduction of the needle into the round and oval foramina is a matter of considerable difficulty, because these orifices may be masked by osseous abnormalities, and several successive injections may be required to attain the object in view. Then, too, in elderly subjects, I have sometimes found the walls of the superior maxilla so fragile that one could not make sure of getting the needle into the infraorbital canal.

*Relapse.*—The cure, after a properly made injection, may be final. My statistics comprise 22 patients who remained cured for from ten to fourteen years. As a general rule, however, relapses occur in a year or eighteen months. The relapse is sometimes less severe than the primary condition, or it may bring with it the same paroxysmal phenomena. However this may be, they are amenable to the same operation, and the subsequent cure will probably be of somewhat longer duration. After the fifth or sixth injection it is rare for the cure not to be definite.

*Conclusions.* Every case of so-called "essential" facial neuralgia that does not rapidly yield to antineuralgic medication or the usual measures is to be treated by the method of local alcoholisation. Surgery has lost its hold on these cases; it is ineffectual, often mutilating and disfiguring; moreover, it has no longer any *raison d'être*.

### Clinical Department.

#### ULTRA-VIOLET LIGHT A SYMPTOMATIC CURE FOR ECZEMA.

By JOHN BRYANT, M.D., BOSTON.

ITCHING and eczema are usually considered to be somewhat synonymous. If one cannot eliminate the eczema, to eliminate the itching is at least to add greatly to the comfort of the patient. It has, therefore, seemed worth while to record the almost instantaneous relief from this distressing symptom which has been ob-

tained by the use of a quartz lamp in a case diagnosed as eczema and treated as such by competent dermatologists with various salves and lotions, but with only indifferent results.

Mr. C., aged 49, was first seen on May 14, 1917. He was referred by Dr. Donald Gregg for light treatment, with the explanation that while visiting at the Channing Sanitarium Mr. C. had out of curiosity exposed himself to the light from a quartz lamp, with the somewhat unexpected result that he got almost immediate relief from the intense itching which at the time distressed him. He came to me hoping that his previous experience could be repeated. He was not disappointed. Blue light does not prevent a recurrence. It has, however, done the next best thing. It has given almost instantaneous and absolute relief from the itching when it recurred. In addition, the attacks have seemed less frequent and less severe, but doubtless this may have reflected an improvement which has taken place in the general condition of the patient. Except on the penis, where there had been some edema, the skin lesion itself was confined to an almost invisible redness, wholly disproportionate to the violence of the accompanying itching. This itching frequently started at one or two o'clock in the morning, prevented sleep, and continued without respite until exposure to the lamp; it has often been rather dramatic to observe the complete relief obtained by a few minutes' exposure to the light.

At first, areas on the eyelids, the sides of the chin, the palms of the hands, the penis, and the legs were affected. Later, the trouble was more confined to the chin and the penis, or the chin alone, but the results of the exposures have been always the same; there has been immediate cessation of the itching.

The exposures have been at a distance of 20 to 25 cm., and the duration has been from five to twenty minutes, according to the location and tenderness of the skin area involved. There is nothing in the literature on the quartz lamp which can be taken as a contraindication to this form of treatment of eczema.

#### SUMMARY.

Ultra-violet light, while not preventing recurrence, has proved an active therapeutic agent and an almost instantaneous specific for the intolerable itching which has been a most distressing symptom in a case of eczema.

### Society Report.

#### SOME PROBLEMS OF NUTRITION IN THE ARMY.\*

By MAJOR JOHN R. MURLIN, SANITARY CORPS, NATIONAL ARMY.

*Chief of the Division of Food and Nutrition of the Surgeon-General's Office.*

Food has been defined as a well-tasting mixture of materials, which, when taken into the stomach, is capable of maintaining the body in any desired state. The choice of these mixtures in the form of menus, their preparation, their digestion and fate in the body, is the science of nutrition. If we had a complete knowledge of every food substance and the transformation it undergoes in the body, just what purpose it fulfills, and how it fulfills this purpose, and what becomes of it afterwards, we should have a completed science of nutrition. A person is satisfactorily nourished when he is maintained in a physical and mental status.

In our Army the first requisite was to create a body of well-muscled men. If you could see the great bodies of these men as I have seen them you would agree that this aim is being rapidly achieved. In the muscle-up period a plentiful amount of muscle-forming materials, the best of which is beef, is required. The first legislation fixing the components of the Army ration is dated November 4, 1775, when the Continental Congress fixed one pound of beef and one pound of bread as the allowance for each man per day, "three pints of beans or peas at a price not to exceed \$1.00 per bushel, one pint of milk, half a pound of rice or one pound of Indian meal per week, one quart of spruce beer or cider for each man, or nine gallons of molasses for each company of men per week." The ration also included candles and soap. The ration fixed July 16, 1798, is in some respects the same as we have today. In 1818 Calhoun, who was Secretary of War, recommended that the liquor components of the ration be discontinued. This was concurred in by Surgeon-General Lovell. Congress, however, failed to act, and the liquor continued as a component of the ration until 1838. In 1817 Andrew Jackson, who was Commander of the Army, became so impatient with the contractor system that he organized a commissary

\* Abstract of paper by Major Murlin, read at the April meeting of the College of Physicians of Philadelphia, Wednesday, April 3, 1918.

department for his own army entirely without authority from Congress. This resulted in legislation dated April 11, 1818, which laid the foundation of our modern Subsistence Department. In 1832 coffee was for the first time made a part of the ration. The ration which prevailed throughout the Civil War, fixed by legislation dated August 30, 1861, was as follows:

beef, 20 ounces  
bread or flour, 22 ounces  
potatoes, 16 ounces three times a week  
beans, rice or hominy "in proportion with above."

Then for each company of men, or 100 rations:

10 lbs. coffee  
15 lbs. sugar  
4 qts. vinegar  
4 lbs. soap  
1½ lbs. candles

Besides the "garrison ration," fixed by legislation dated January 11, 1911, the American Army has the reserve ration, the travel ration, and an emergency ration. The last named has been well defined "a substitute for nothing." The Division of Food and Nutrition, in its effort to find a satisfactory emergency ration, has not been entirely successful, but believes that the most satisfactory form of concentrated ration is hard bread, supplemented by potted beef or ham, dried beef or sardines, and when there is opportunity for the use of a portable cooker, three ounces of sliced bacon should be added. The ration forming the basis of feeding in training camps does not prescribe what the men shall eat. It is merely used as the basis of money allowance for the ration. A long list of substitutive articles is carried by the Quartermaster Department, but the soldiers must not spend more than the amount of money represented by the cost of garrison ration, with certain definite percentages of substitutions, at the time and place where they are stationed. If the men do not like what the Quartermaster has in store they are at liberty to take money from the quartermaster in lieu of rations and buy materials outside. This is at the discretion of the commanding general. On the whole, it must be said that the mess system in vogue in the American Army works well. The work of the Division of Food and Nutrition is not to supply food for the Army. Our duties are largely of an advisory or inspectorial nature. We are authorized to in-

spect all the food of a camp, with especial reference to its nutritive value; to seek to improve the mess conditions; to determine the actual consumption of food and amount of waste, and to report these facts to the division commander. The Division now contains 65 officers and some 50 enlisted men. A Nutritional Survey party, consisting of four officers and several enlisted men, spends from two to four weeks in a camp studying food conditions and making recommendations, and then returns to observe improvements. One contingent has gone abroad to report to General Pershing for similar service in France. Already the Food Division has been able to improve food conditions, and has already gathered a considerable body of information regarding the actual consumption of food and the amount of waste. Recent reports from Camp Funston and Camp Sevier show that waste has been reduced to a practically negligible point. Company commanders at their discretion can compel a man to eat at the next meal anything he has left on his plate. We find that the most economical way of serving men in large numbers is by the squad system, in which the squad leader shall have authority over the serving of his men. Our work has given the first instance in warfare in which the actual amount of food consumed is estimated directly in the camp and field. This is made possible by our system of feeding men by companies. Meat is the most economical repair material for muscle and other active tissues. The British Army allows 1 lb. of meat per man per day; the French Army, ¾ lb.; the Italian, ½ lb. Our allowance is 1¼ lb., but the actual consumption in the camps in this country does not exceed ¾ lb. The question may fairly be asked whether the Government would not be well advised to reduce the quota of meat and replace the amount thus saved with sweets, provided as a part of the ration. The dehydration of vegetables is a question of great interest to the Army, and the Quartermaster Department has placed orders for dehydrated potatoes, onions, and carrots for the use of General Pershing's army. By simply soaking in water and boiling in the same water these vegetables are brought back to the condition of fresh vegetables and often cannot be distinguished from them. The saving of time in the company kitchen is also a highly important element. The Division of Food and Nutrition has already found a meth-



od of making meat powder by dehydration at low temperature and a high vacuum. Imagine the difference in the cost of transportation, quite aside from the cost of refrigeration of these food products! At the request of the American Red Cross, the Food Division prepared an American prisoners' ration which could be shipped to the Red Cross Headquarters at Berne, Switzerland, and packed in parcels not to exceed 11 lbs. This was sent three times every two weeks. The list was somewhat as follows: Rice, sugar, dried beef, pork and beans, peanut butter, soda crackers, evaporated milk, milk chocolate, desiccated strawberry, jam, nut margarine and dried figs. At the request of the Red Cross we also prepared a ration to be known as the invalid ration. The following ration has been approved by the President and adopted: Unpolished rice, yellow cornmeal, sugar, potted chicken, Julienne or compressed soup tablets, dried milk powder or Horlick's malted milk, beef extract, minute tapioca or other form of prepared pudding, crackers, tea, milk chocolate, marmalade, fresh fruit or fruit juice. These articles, however, are regarded as only supplementary to those of the regular ration. The status of the science of nutrition in America is equal to its status in the land of our enemies at the beginning of the war, and our Government has been foremost in the support of scientific investigations along these lines.

### SOME OF MY OBSERVATIONS IN FRANCE.\*

BY MAJOR W. A. GARRETT,

*Assistant General Manager, Remington Arms Company.*

OUR Commission, sent to France by the War Department to study the French railroads and report on their needs to take care of the American expeditionary force to be sent over under General Pershing, consisted of William Barclay Parsons of New York, the engineer who built the subway, chairman, to give special attention to rivers and harbors; William J. Wilgus, formerly vice-president of the New York Central, to study maintenance of ways and bridges; Mr. F. de St. Phalle, of the Baldwin Locomotive Works, was to study loco-

tives and cars, and my study was transportation. We were able to report in part to the Department that the railroads of France were in as good average condition as the average American railroads today. We had the word of French officers that the moment the railroads go down, that moment a country loses a war. The British have a problem similar to our own, that is, to handle men and material from the west coast of France to the fighting line. In England, in the effort to economize in every possible way, little notice cards are put on your table, "Don't waste bread; if half a slice is enough, please cut the whole slice. Every one must save bread; it is a national duty. Will you help?" The difference between England and the United States is this: The situation is serious and England knows that to be true; the United States does not yet know that to be true." We shall all know it soon. We reached Folkestone 48 hours after a German aeroplane had killed 38 people, principally women and children. France has seen her own people killed, male and female enslaved, females worse than enslaved, their houses looted and destroyed, their streams and wells polluted, and the very ground from which they must get their living shot up to almost utter uselessness. War is just what Sherman said it was—plus. The French people are not so much impressed with what the German Army has done as what it did not do, because on paper the Germans had the best gambling chance to win that any country could have after forty years of preparation. We were told in France that the Germans were so sure of getting into Paris that when the battle of the Marne was fought they had left their big guns back in Belgium. Joffre's handling of the railroads was such that the Germans could not get down the larger guns if they had tried. The Pressed Steel Car Company here in America has orders to build a certain number of steel freight cars for the French Government. They are built in this country, knocked down, and sent over seas, and erected in France by the German prisoners. They were paying the German prisoners four francs for each day's work, with a possible one franc extra as a bonus provided they did more than their day's work. We were told that 90% of the German prisoners were making the one franc extra. On the British fighting line we saw that wonderful aggregation of British fighters from England, Ireland,

\* Abstract of paper by Major W. A. Garrett, Assistant General Manager, Remington Arms Company, at patriotic rally under the auspices of the Philadelphia County Medical Society, April 26, 1918.

Scotland, Wales, Canada, Australia, West Indies, New Zealand. One sees hundreds of miles of shot-up trenches and thousands of miles of barbed wire fences and entanglements, and the wonderful hospitals in charge of those splendid men and true godly women. And then one sees the graveyards, hundreds upon hundreds and thousands upon thousands of graves everywhere; white crosses for the Allies, black crosses marking the Germans. From German prisoners were taken postcards reading: "You will take no prisoners. Show no mercy. Show no quarter. Make yourself as terrible as the Hun who said, 'Where your footsteps fall let no grass grow for a thousand years.'" The German soldiers are trying hard to carry out the order, and are doing the job well. This is what General Pershing has put out: "Your first duty is to be soldiers; your second, and scarcely less important, to help those who are poor and weak. You will be courteous to all women. Abstain from wine and liquor. Be kind to little children. You will fear God and honor your country and win the war to liberty. God bless you and keep you." Our commission did not witness any German atrocities; that was not our study. But there are commissions in both Belgium and France who are taking the historical record, so that when the time comes for the long-table conference, with Germany on one side and the Allies on the other, there will be an accounting from which there can be absolutely no escape for the Germans. The British are protecting in the northeastern part of France approximately 125 miles of fighting front from Belgium into France, and the average distance between the British channel and the British fighting line is approximately fifty miles. Where we, the American troops, fight, it is over 400 miles from the coast to the fighting line. The British have 750 British locomotives in France, 49,500 British freight cars in France, 98,620 odd transportation men for a fifty-mile haul, and we have a 400-mile haul. The British also have on this fifty-mile fighting front over 200,000 laborers of twelve nationalities to unload ships, work upon the railroads, highways, canals, supply stations, and railway yards. In other words, 200,000 laborers and 100,000 transportation men for a fifty-mile performance, and we have a 400-mile performance. The American people have absolutely no thought of what they are up against. When the second

Liberty Loan came out less than 10% of our people thought sufficient of the war to loan the Government money. We shall know, however, that we are at war when we see cripples, cripples—everywhere; when our hospitals are full to overflowing, and when your boys don't come home. General Pétain told us about Verdun. He was at Verdun when the Crown Prince made the attack—one of the greatest attacks the world has ever known, because Emperor William wanted to have the Crown Prince do something worth while. General Pétain decided to hold Verdun, and he issued the famous order, "They shall not pass.—Pétain," which is still painted on the fort at Verdun. General Pétain told us that as soon as it was decided to hold Verdun they decided to do three things: Build a thirty-six mile double-track railway from Fleury to Doune, and it took 60,000 men three months to build it. They then decided to make a harrow line of three feet gauge which they had into a double track. The call for engines and cars for this work was so urgent that passengers and freight were left standing out in the country. The third thing which they did was to make a pike into a double width, that automobiles might pass. Automobiles going to Verdun with men and materials had the right of way. We looked across the valley where the Crown Prince of Germany lost over 500,000 men trying to take Verdun. In each German regiment they have what they call a "hellish squad," the duty of which is to poison wells and to connect with electric batteries everything movable. Every soldier in Europe today rides in box cars and on flat cars, and if there is any complaint about our passenger service in this country, keep that fact in mind.

The food situation in certain parts of France is very critical. Few people in this country understand what that splendid man Hoover is trying to work out. He is not trying to save you the cost of living, but to prevent starvation in Europe and here. The French people are very tired. They have fought the war for over three years. They have lost 1,300,000 men killed, and you cannot tell how many men crippled, crippled, crippled! All that France can give our people today is air, water, and standing timber. Claveille said: "Don't send any bridge timber, dock timber, or railroad ties. Send your foresters over to cut our

standing timber." When we left Paris coal was selling for \$45 per ton, and you could not get the full half ton that Dr. Garfield gave you last year.

It had never been my good fortune to meet General Pershing until I was in France. He endeared himself to the French people because he went to the tomb of Lafayette and said, "Lafayette, we are here!" Four words, and then the French people knew that the American commander was a man of action and not of words. Until we reached Péronne, today in the hands of the British, I was of the opinion that the destruction of trees was a military necessity. There we saw on each side of the boulevard trees fifty or sixty years of age. The Germans had deliberately cut each three-quarters through with an axe; every tree standing and every tree dead.

Over 46,000 women are working on the French railroads. In England the "British Women's Army Auxiliary Corps" are getting approximately 50,000 women to be sent to France to act as clerks, cooks, and chauffeurs. The American women—God bless them!—they will do the right thing when they know the job before them, and the job is there. My father was a birthright Quaker, but having seen France, I am absolutely certain that we should have in this country universal military training.

Shall we win the war? Yes! Just as sure as the sun rises in the east, *because we must!* How long will the war last? Until we win. Our Government, however, has very wisely mapped out a program for a long-time war. But consider the bigness of the war. Money by the billions, men by the millions, ships, aeroplanes, and cars by the thousands. Our war program is the biggest transportation program that the world has ever known. My message to those who stay at home is: Economize. Don't waste. Be an American first, and all the time. Let your criticism of our war program be constructive and not destructive; stand behind the Government and ask yourself each day, "What am I doing to help win this war?" And for those good men and true women who go abroad to win our war, Good luck and God bless them!

## HOW AMERICA IS HELPING FRANCE WITH HER TUBERCULOSIS PROBLEM.\*

By JAMES ALEXANDER MILLER, A.M., M.D.

Associate Director of the Commission for the Prevention of Tuberculosis in France.

THE Commission for the Prevention of Tuberculosis in France was sent in July, 1917, under the auspices of the International Health Board of the Rockefeller Foundation, with Dr. Livingston Farrand, formerly Executive Secretary of the National Association for the Prevention of Tuberculosis, as its Director. In February, 1917, Dr. Herman M. Biggs was requested by the International Health Board to make a first-hand study of the situation and the sending of the permanent Commission was a direct result of Dr. Biggs' report and recommendation. The results of the studies made by the Commission thus far tend to corroborate Dr. Biggs' estimate of nearly 500,000 cases of tuberculosis in France, though the classification is somewhat modified. Dr. Biggs' classification is as follows:

Discharged from Army .....	150,000
Still remaining in the Army .....	45,000
Prisoners of war in Germany .....	45,000
Civilian refugees and repatriés .....	85,000
Among the remaining civilian population ..	110,000
Tuberculosis listed under false diagnoses, such as bronchitis, etc. ....	30,000
Total .....	440,000

It is the opinion of several of the best of the French clinicians that a very large percentage of the cases diagnosed as tuberculosis in the Army did not have this disease, at least, in active form. That predisposed cases do well rather than otherwise under Army régime was the expression of opinion of French physicians in military service. Very few tuberculous prisoners of war in Germany have been returned to France. That a goodly number of cases of tuberculosis are covered under such terms as chronic bronchitis is most probable. The prejudice in France against public acknowledgment of tuberculosis in a family is even greater than in this country. In Paris, where the mortality is highest, more than 52% of the deaths reported from tuberculosis occur in hospitals where the greatest accuracy in diagnosis and record is to be expected. Regarding tuberculosis among the remaining civilian population, an analysis shows that, while the

\* Abstract of paper read before the College of Physicians of Philadelphia, May 1, 1919.

death rate from tuberculosis in France is high, it has been no higher during the war than previously; also that the increase in the death rate above the average in France is due almost exclusively to the very high figures which obtain in large cities. Tuberculosis remains, as before the war, a disease especially of the civilian poor in large cities. The food problem has by no means reached the point of actual want in France, excepting in the exceptional cases, although the question is a difficult one. Alcoholism plays a large part, and all French sanitarians hope for some control of the sale of distilled liquors as a result of the war. Second in importance to the tuberculosis problem in France is that of infant mortality and of depopulation. We have found it desirable to link up the two campaigns through coöperation with the American Red Cross. This has been done by carrying on the publicity propaganda as one united effort, and by conducting clinics for children in all tuberculosis dispensaries which we have established. The birth rate in France is well below the death rate. The infant mortality rate, however, is distinctly below that of Germany. Our Commission entered into a working agreement with the American Red Cross which has exhibited as splendid an example of coöperation as could possibly exist between two similar bodies. Our working basis was that the general outline of the tuberculosis campaign and the policies involved should be directed by the Commission, which would have direct charge of the establishing of dispensaries, the training of nurses and the educational propaganda—the Red Cross assuming the institutional care, home relief, and housing. There was, as a matter of fact, interchange of work and personnel, with complete harmony. We assumed the entire responsibility for community tuberculosis work in an *arrondissement* of about 250,000 inhabitants. Three tuberculosis dispensaries have been established here and a fourth is under way. The visiting nurses are doing tuberculosis work and infant welfare work simultaneously. The housing problem in France is one of the most difficult to solve. The overcrowding and general lack of hygiene in the tenement districts exceeds almost anything with which we are familiar in our large cities. Mr. Homer Folks of the Red Cross contracted with the owners of half-finished apartment buildings for the Red Cross to finish the buildings and to apply the

necessary expense toward the rental upon a three-year basis. This has made available space for several thousand people, some of which has been used for our tuberculous families. In order to make our demonstration more complete, we developed a rural section of France along the lines followed in the *arrondissement* mentioned. Hospital supervision has been provided and plans are under way for the erection of a sanatorium. The same methods have been employed as in Paris, including the establishment of children's dispensaries, training of visiting nurses, and provision for home relief. In addition to these two intensive organizations we have coöperated with existing French dispensaries. In our various dispensaries we have over 1500 new patients in attendance and 1350 families were under supervision April 1, 1918. Until a few years ago the nursing of the sick in France was entirely in the hands of the nuns, but since the separation of Church and State, schools for nurses have been developed. We have established a scheme of coöperation with three of the best schools in Paris and a fourth in Lyons. While the theoretical training given to nurses and in the practical work in institutions was splendid, there appeared to be a lack in the training for social work. We have achieved a common basis for the curriculum and secured courses in the principles of social work. As all physicians of military age in France have been mobilized, only the elderly men and women physicians remain. It has been our policy to coöperate with them in every possible way. One important result has been a most interesting and valuable interchange of knowledge and methods between the physicians of France and America. Members of the Faculty of Medicine in Paris and in Lyons have suggested that we offer a course in diagnosis to the students of their medical schools. This undoubtedly will be done later. Probably the most interesting and successful feature of our Commission has been the educational propaganda developed under the direction of Professor S. M. Gunn, in coöperation with Mr. Pratt of the Children's Bureau of the American Red Cross. The plan consists in having several educational automobile units, comprising moving picture machines, a traveling exhibit, a mass of printed literature and posters and lectures on tuberculosis and infant welfare, all heralded in advance and kept before the public by a well-



organized press campaign. Three of these units have begun work and twelve are planned. The success achieved is already astonishingly great, and the enthusiasm has not only done much to extend the health propaganda, but has aroused a tremendous admiration for America among the French people. No more stirring experience can be had than watching the effect of this American effort among the French people. The very satisfactory beginnings of the campaigns in France against tuberculosis and infant mortality is due mainly to the cordial spirit of coöperation manifested by the French themselves, who need the encouragement and assistance that America has brought to them, only to tide them over this present period of terrible strain and stress. That America has been able to have a part in the beginning of this great movement will do much to strengthen the ties of affection binding these two great republics, and to those of us who have been privileged to share in the work, it will always remain one of the great and deep experiences of our lives.

### Book Reviews.

*Clinical Studies in the Relationship of Insanity to Crime.* By PAUL E. BOWERS, M.D. 8vo. pp. 104. Michigan City, Indiana, Alexander Publishing Company.

The author, a physician in charge of the Indiana Hospital for Insane Criminals, has had opportunities for much observation of insane criminals, and it is encouraging to see such efforts at serious study made in this field.

After some general, rather brief discussion of such points as general causes of crime, and on criminal anthropology, the writer first gives a series of cases in which criminal acts were committed by epileptics, paranoiacs, sufferers from dementia precox, general paresis, manic-depressive insanity, hysterical and puerperal insanity, senile psychoses, cerebral syphilis, drug psychoses, traumatic psychoses, feeble-minded, psychopathic personalities and cases of constitutional immorality.

The cases given in this book are very briefly reported, and so the impression given is that it is rather superficial in its treatment of this large subject, though this is probably due to the author's desire to keep it moderate in size.

*Three Contributions to the Theory of Sex.* By PROF. DR. SIGMUND FREUD, LL.D. Authorized Translation by A. A. BRILL, Ph.B., M.D. Nervous and Mental Disease Monograph Series No. 7. 8vo. pp. 117. New York: Nervous and Mental Disease Publishing Company.

In this small volume the author expounds some of the bearings of his views of the sexual impulses in three directions, taking up first the sexual aberrations or perversions, then infantile sexuality, and lastly the transformation of puberty. While acceptance of Freud's theories as a whole is far from being general, no one with understanding and knowledge of psychoneuroses and abnormal psychology can deny the widespread ramifications of the sexual instinct in many directions where often least suspected, and while certain examples of sexuality in the infant, such as that from nursing and thumb-sucking, seem to be taken as positive proofs by Freud and his school, in spite of doubt as to their universal validity, the explanation of sexual perversions as developed from permanent repression of the sexual instinct during development from the infantile forms is constantly suggestive, and probably applies to some of the cases.

Again we must thank the editors of this series for making accessible to English readers books of importance in the field of nervous and mental diseases which in the original languages are little likely to be as widely read as they deserve.

*Nervous Children.* By BEVERLEY R. TUCKER, M.D. 12mo. pp. 147. Boston: Richard G. Badger.

This book consists of brief talks, in simple language, on defective children, such as the paralyzed and imbeciles, as well as other forms of less severe disturbances of the nervous control. The treatment of the subjects is chiefly upon the lines of anatomy and physiology, but throughout the book are many useful suggestions and points of view which will be found to be of practical use, especially to parents and teachers. It forms a useful introduction to the study of this subject, which has called forth many notable books and articles in comparatively recent years.

*Lord Lister.* By SIR RICKMAN JOHN GODLEE, Bt. London: MacMillan and Company, Limited. 1917.

This biography, written by Lord Lister's nephew, gives a record of what Lister has done for Science and Surgery. It is written by one who, because of his close personal contact with him for many years, is able to depict Lister the man as well as Lister the public

benefactor. Many of Lister's letters to his father, brother, and friends are interwoven with the story of his discoveries.

Joseph Lister was born on April 5, 1827, at Upton, in Essex. He spent his youth in a Quaker atmosphere. He attended two private schools: the first at Hitchin, the second at Tottenham. At an early age, he began to macerate bones, dissect fish and small animals, and to articulate their skeletons. At the age of seventeen, he went to University College, London, where he began to study surgery soon after the discovery of anesthetics. His first step in a professional career was taken when he began to assist Mr. Syme, of Edinburgh, one of the most successful surgeons of the day, in his private operations.

Lister next obtained the appointment of Assistant Surgeoncy at the Infirmary. During this period, he delivered lectures on "Early Stages of Inflammation," a subject in which he had made original investigations. In 1856, he married, and, after a wedding journey, settled in Edinburgh. In the next few years, Lister pursued his investigations on coagulation of the blood, and delivered a paper on "Spontaneous Gangrene." His private practice began to increase. In 1858, he received an appointment to the Professorship of Surgery at Glasgow, and was also appointed Surgeon to the Royal Infirmary. At this time, he began to write articles on amputation and anesthetics. The methods of wound treatment in the middle of the 19th century were completely revolutionized by Lister. He experimented with antiseptic drugs and made investigations in fermentation and putrefaction. His antiseptic system was a campaign against wound infection: heat, filtration, and chemical antiseptics were the three methods for ridding the air of its germs. Two facts which Lister discovered had an important bearing upon the development of the antiseptic treatment: 1, That an antiseptic clot which had once contained carbolic acid could, if undisturbed, be organized into living tissue by the growth into its substance of cells and vessels from surrounding parts; 2, that a piece of bone that has died may be absorbed in an aseptic wound by the granulations that lie in contact with it.

In 1886, he became candidate for a professorship at University College, London, but he was defeated. It was a great disappointment to him, and he settled down at Glasgow. His antiseptic principle had been clearly and publicly explained and many visitors came to see him. His students, however, exercised more important influence in spreading his doctrines than did the numerous visitors who came to Glasgow. Lister recognized that antiseptics when they damaged tissues were evils, so he tried to do away with them. He dressed amputations by excluding germs mechanically; a protective—block tin, tin foil, or gold leaf—was used to keep the antiseptic from irritating the

wound. The most successful protective was oiled silk, covered with copal varnish. Carbolyzed catgut was used freely in wounds with complete success.

Lister was appointed to the chair of clinical surgery in Edinburgh in 1869, and was recognized as the leading Scottish surgeon. He delivered two clinical lectures a week, and made a series of investigations in the history of fungi and bacteria and their relations to fermentative processes. At this time, he made two important modifications of the antiseptic treatment: 1. He attempted to render air innocuous by means of antiseptic spray. 2. He substituted an absorbent gauze dressing for the non-absorbing lac plaster. The spray proved unsuccessful and was abandoned.

In regard to the reception of Lister's teaching at home: his new principle of antiseptic treatment was at first sharply criticized, but Lister continued to place his views before the profession in addresses and papers dealing with the effects of the antiseptic system. Lister's teaching made little headway in London until younger surgeons who cared to test its truth reached a sufficient degree of seniority to have charge of wards. On the whole, as time went on, there was a tendency for apathy to pass into opposition. Conviction spread more among the rising generation than in that of successful practice by their elders. Progress was more marked in provincial towns, where younger men were more frequently advanced to the charge of wards. As to the reception of Lister's teaching abroad, the situation was slightly more favorable. German education was more scientific, and Lister's teaching appealed more to German than to English minds.—German surgeons discussed the principle involved in a rational way, even if they disagreed with it. Early enthusiasm, however, soon cooled, because Germans could not succeed in obtaining Lister's results. In continental schools, also, his treatment was tried and given up. In France, the essence of Lister's teaching was long in obtaining a secure foothold. In Italy, all surgical reform was slow, and the adoption of antiseptics was belated. In America, progress was even more slow. During his Edinburgh professorship, Lister's literary output was large, and dealt especially with antiseptics and fermentation. Lister's influence on military surgery has been great, but it has failed to accomplish all that was hoped. Mortality after amputation has diminished, and his teaching has helped in the intelligent treatment of infected wounds. At this time, Lister purchased a house at Lyme Regis. During 1873-4, he was occupied in bacteriological work and clinical improvements. Letters to his brother show how time was passed. The most important events of 1875-6 were a continental journey and his appointment to the General Medical Council; the former brought him into personal contact with the chief German sur-

geons, and the latter made him intimately acquainted with many leaders of the medical profession in London. Two demonstrations were given at a meeting of the British Medical Association; Lister performed several operations and showed the results of antiseptic treatment.

Lister made many experiments on animals; he felt that they were justifiable and necessary for the sake of eliciting scientific truth. There was much opposition, however, to vivisection; the Royal Commission inquired into the subject in 1875 and Lister gave evidence before it. Lister was appointed to the General Medical Council and was recognized as the most prominent medical man in Scotland. In September, 1876, Lister attended the International Congress in Philadelphia and was made president of the Surgical Section. In 1877, King's College created an additional chair of clinical surgery for him, and Lister left for London. His nine years at Edinburgh had been of priceless value to him; he had had good opportunities for pathological and clinical research and for spreading his influence among foreigners. This was probably the most brilliant and the happiest period of his career.

Lister moved to London and his private practice became considerable. He took to London with him four men whom he had trained—otherwise it would have been impossible for him to plant his new system in the uncongenial soil which was the best that King's College Hospital was able to offer him. Reformation of nursing was necessary, and Lister found a lack of sympathy and absence of enthusiasm among the sisters. For his introductory oration at King's, he gave an address on "The Nature of Fermentation," which is the foundation stone of the antiseptic system. The lecture was a brilliant and hopeful beginning of his campaign. The situation was chilling and depressing so far as teaching was concerned, for there was little enthusiasm. His relation with his colleagues, however, was cordial, and London surgeons began to become appeased.

As time went on, Lister received many honors. In 1878 he addressed the Harveian Society. He was gazetted Juror of the Class 14 (Medicine, Hygiene and Public Relief) at the great universal exhibition at Paris. He attended the Sixth International Medical Congress in Amsterdam in 1879, and made an address before the Pathological Section of the British Medical Association at Cambridge. The Seventh International Medical Congress met, in 1881, in London, and Lister opened a debate "On the relations of minute organisms to unhealthy processes arising in wounds and to inflammation in general."

Surgeons at this time began to arrange themselves on one side or the other of antiseptic or aseptic surgery. Prejudice against chemical antiseptics increased, and many turned away

from Lister's teaching and proclaimed themselves asepticists. Lister frankly admitted that a certain number of the beliefs upon which his system was founded had had to be modified or even discarded. The two systems are really not opposed to one another; aseptic surgery is only a modification of antiseptic surgery.

Lister's life in London was honored by many distinctions. For fifteen years he occupied the chair of clinical surgery at King's College. In 1880 he received the LL.D. Cantab. and the D.C.L. Oxon. Foreign distinctions in abundance were bestowed upon him. In 1883 he was made a baronet. His life in London was less strenuous than in Edinburgh, but there was no relaxation of his experimental work, and Lister was gradually accepted by London. His later life held longer and more leisurely holidays, spent with Lady Lister. In 1889 an International Congress of Hygiene was held in London. Lister was President of the Section of Bacteriology, and gave an address summarizing the bacteriological work done during the preceding ten years. In 1892 he retired from the Professorship at King's College, at the age of sixty-five years; but he continued in charge of wards for another year. The death of Lady Lister, who had been his intimate daily companion and intelligent helper, left him lonely and depressed. In 1893 he retired from King's College Hospital. His appointment as Foreign Secretary of the Royal Society opened to him new fields of interest. He became President in 1895, and his duties forced him to take more prominent part in public ceremonies. In 1894 he gave an address to the students of Glasgow University. His theme was the simplification of the antiseptic treatment.

In 1896 Lister was made President of the British Association. In 1897 he was elevated to the peerage and became a member of the House of Lords. In 1897 the British Association and the British Medical Association held their annual meetings in Canada, and Lister was prominent in both. In 1898 he received the freedom of Edinburgh. In 1901 he took an important part in the Tuberculosis Congress held in London. The same year he made a voyage to South Africa. He was made member of the Order of Merit and a member of the Privy Council. He received the Copley medal of the Royal Society. Nineteen hundred and four to nineteen hundred and seven were uneventful years, during which he studied English and foreign scientific literature and collected all his writings. In 1909 they appeared as "Collected Papers," divided into five parts: (1) Physiology; (2) Pathology and Bacteriology; (3) The Antiseptic System; (4) Surgery; (5) Addresses. In 1907 Lister was presented with the freedom of the City of London and the freedom of Glasgow. The years 1908-1912 were the gloomy twilight after a brilliant career. Lister died on February 10, 1912. A service was held in his honor in Westminster Abbey and he was buried beside his wife in West Hampstead Cemetery.

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### AUDITORY AND KINETIC THEORIES OF SEASICKNESS.

Most of the attempts to elucidate the etiology of seasickness are purely theoretical, the reason being that there is an inherent vagueness in the nature of the disorder. Moreover there is a psychological factor at work, which adds complexity to the problem, for certainly the impulse to seasickness has been faith or fear, that is, self-confidence or a morbid fear of the sea and the circumstances of ocean travel. It may therefore be admitted that in a case of seasickness physical and mental elements are as closely connected in the causation of the symptoms as the presupposed union of soul and body in the nature of man would lead us to expect. In recent investigations, a third element has been added which may be called the dynamics of seasickness.

As soon as this factor was understood, the question arose whether seasickness is, properly

speaking, a disease. Opinions differ, but it is to be noted that physicians of ocean liners, who have had much actual experience, do not take the view of office specialists. Thus Isaac Jones in a recent work on "Equilibrium and Vertigo" (1918) writes: "We are dealing with a sickness which is not a sickness in the true sense of the word. It is a normal reaction in a normal mechanism." According to this view, seasickness is caused by "varied movements of the endolymph and the inability of the brain either to interpret or to disregard them." Technically, and as regards theory, this state briefly represents the physiological school. On the other hand, the view of most ship surgeons naval and mercantile, is summed by Barnett ("Seasickness," London, 1907), that it is a disease in the strict sense of the word, and often a very "serious" one.

Notwithstanding its limitations, the auditory theory of seasickness has served a useful purpose in giving a clear idea of the part played by the semicircular canals in one of its main symptoms—vertigo. As regards this symptom, physicians agree that it is auditory, but they are by no means equally convinced that it is the same thing as vertigo produced by the revolving chair or by other mechanical methods of stimulating the internal ear. In order to appreciate the diverse views of observers of the phenomena, it is desirable to state the case for the auditory theory and the facts of recent study. According to Lewis Fisher it is "generally accepted that the phenomena resultant from being turned in a chair are the result of stimulation of the hair cells in the semicircular canals brought about by the movement of lymph within those canals. At the outset, therefore, it is fair to assume that those vague symptoms known as *mal de mer* are produced in the same way. Furthermore, if this assumption be correct, any agency which induces movement to the lymph within the semicircular canals should produce the same symptoms."

It would seem to follow from this proposition that aviation, in which there are violent movements of the endolymph, must be peculiarly marked by a tendency to seasickness. Yet it seems to be acknowledged that "air sickness" is not seasickness, and many writers, of late, have stated that pilots seldom suffer from this disorder. At the same time it is not difficult to conceive that any motion which more or less



violently throws the endolymph against its containing walls, richly supplied with delicate nerve endings in direct communication with brain and stomach, will produce symptoms referable first to the equilibrium, then to the cerebrum, and finally to the stomach. That this is what occurs in seasickness is not denied, but it is quite a different proposition to assert that there are no other factors at work.

There must, in fact, be other causes of seasickness. Thus, it is pointed out that deaf mutes, in whom the semicircular canals are absent or defective, should be immune, on this theory, from seasickness. Many physicians believe, on what has proved to be insufficient evidence, that deaf mutes escape the malady through their anatomical departure from the normal. Actual experience, however, does not bear out this view. In an exhaustive analysis of prevailing theories, Trocello (*Annali di medicina navale*, 1916, Vol. xxii, p. 473) says: "Now, if seasickness were of vestibular origin, deaf mutes in most cases should certainly be immune, and so should individuals with profound bilateral lesions of the acoustic labyrinth. No evidence of this kind could be established. Deaf mutes are not immune to seasickness."

The lack of relation between the vestibule and seasickness is seen in another detail. According to Achard, in seasickness the acoustic phenomena, as he says, are inconstant or absent, or they occupy a secondary place; disorders of hearing, in a word, are not a consequence of this form of illness. But, if it were vestibular in origin the acoustic phenomena could not be absent or transitory. He attributes any slight deafness during seasickness to a momentary increase of pressure of the lymph, or to congestion or ischemia of the brain. But, he adds, these are also phenomena of Menière's disease.

A special difficulty for the advocates of the auditory theory is the fact that in Menière's disease the essential element is an increase of pressure in the endolymph of the semicircular canals. The increase of tension is lacking in seasickness, as Trocello found, or the alterations of pressure were sufficient only to disturb the sense of equilibrium; they produced neither deafness nor subjective noises in the ears. On the other hand, he states it is impossible to deny that the triad of symptoms in Menière's disease—vertigo, noises in the ears and hypoacusis—may also occur in seasickness. It is when we

come to analyze the vertigo that differences appear. In Menière's disease it is labyrinthine in origin, but in seasickness, as the case of deaf mutes and animal experiments show, it is of more complex causation.

In these new studies nothing is more illuminative than the inquiry into the nature of the vertigo of seasickness. It is generally said that rotary vertigo, the vertigo of electric stimulation and Barany tests, is vestibular. As to seasickness, there is the opinion of Leri that "marine vertigo and mountain vertigo are due to the rapid modifications of pressure in the endolymph of the internal ear, and that of Cyon and Gaglio who sought to demonstrate by experiments on animals that the endolymph could be removed utterly without causing a disturbance of equilibrium. The truth lies between two extreme views, according to Trocello. An organ exquisitely equipped with a sense of hearing and balance must be affected by the motion of the sea, but, on the other hand, it is curious that vertigo is not regularly caused by the exercises of acrobats and other violent movements.

The explanation is, therefore, to be found in a general disturbance produced by passive movements of the body. By passive movements are understood those caused by a swing or hammock and the rolling of a ship, all of which place the body in unaccustomed positions with abrupt changes of its axis, or, as Trocello prefers to say, of the static and dynamic equilibrium of the body. The vertigo of seasickness is peripheral in origin, a disturbance of the general kinesthetic sense. In more specific language, it is the result of stimuli to the peripheral nerves, which convey the irritation to the vagus, the auditory nerve, and the vasomotor nervous system, and thence to the walls of the stomach and abdomen. The essence of this somewhat abstract conception is that any abnormal position of the body, even if there is no vibration or other motion, will produce seasickness. This is the explanation of the fact that it comes on gradually and even when a ship is in port and there is no motion.

Some support has been given to this view by the recent studies of Naame (*Endocrinologie*, 1917). He connects seasickness with a deficiency of the secretion of the suprarenal glands. Thus: "The motion of the waves produces an irritation of the abdominal viscera, causing, through the medium of the solar plexus, an inhibitory action on the suprarenal glands; thence

there is a reflex hypoepinephria, revealing itself by the following symptoms: vomiting, constipation or diarrhea, asthenia, hypotension. The analogy to seasickness is striking."

"Without attempting to place these views, it may be said that there is no improbability in certain facts which they allege, namely, that seasickness is a general disorder of equilibrium with the secretions of the glands and the vasomotor nerves as accessory factors. It may be fairly said that the analysis by Trocello and Naame has been achieved after much actual experience among troops and emigrants. It may perhaps be premature to see cause and effect in seasickness and a disorder of the kinesthetic sense and the internal secretions, but, on the other hand, there may be a close relation.

#### THE CRIPPLED SOLDIER.

Two recent pamphlets by Douglas C. McMurtrie, entitled "The Organization, Work and Method of the Red Cross Institute for Crippled and Disabled Men," and "Reconstructing the Crippled Soldier," are of great value in bringing to the public attention the needs and methods of helping this class of men. It is for us to recognize our social responsibility and so to mould public opinion that, instead of further handicapping the disabled man by prejudice, he may receive our constructive sympathy and encouragement.

The first pamphlet deals with steps which the Red Cross Institute has already taken with the purpose of providing for the economic and social rehabilitation of disabled men. Instead of waiting for war cripples, the organization has already begun its work in assisting industrial cripples, with the hope that through the experience so gained, timely and efficient aid may be given to men incapacitated by the war.

In re-educating the cripple, the first step involves an individual study of the man, his educational and industrial experiences, his tastes and aptitudes. Thorough trade training is not possible because of economic necessity and the attitude of the average adult to education as such. Attempts are made, however, to sharpen the cripple's remaining powers, to compensate for the physical loss sustained.

There are four trades to which disabled men

may be easily adapted: manufacture of artificial limbs, oxy-acetylene welding, mechanical drafting and printing. Other trades are under consideration.

Various departments of the Institute help the men in the different stages of rehabilitation. The Department of Field Work gets in touch with prospective pupils. Social workers visit men at hospitals, gain their confidence, and help them to plan their future. "Parties" are arranged so that disheartened cripples may meet and gain courage from others who have overcome their handicaps. The Employment Department tries to overcome the prejudices of employers by placing scientifically trained men in their charge. The follow-up work carried on by this department is of great value.

In order to help the cripple further, a survey is being made of industrial processes, in order to find the best opportunities for cripples; a library has been formed which contains all the available books and pamphlets about all sorts of cripples; furthermore, a research department gathers material from Great Britain, France, Italy, Germany and Canada, so that mistakes may be avoided by learning of the experiences of others.

The Department of Public Education endeavors to show the public that its intelligent and sympathetic coöperation is vitally essential in restoring the war cripple to a position of social and economic independence. Through the News Service, Publicity Service, periodical articles, photographs, and public speaking agencies, a large number of people are forced to think and to interpret the problem of the military cripple.

The pamphlet, "Reconstruction of the Crippled Soldier," emphasizes further the need of adopting the most helpful attitude toward the cripple. Every inch of productivity is needed, and the return to labor benefits the cripple even more than the State. The process of rehabilitating the crippled soldier is discussed in detail from the time he begins to learn anew the use of his limbs and artificial appliances to the time when he is permanently employed. The importance of the right type of personal influence is emphasized. The training for various trades is described.

A plea is made that the American public shall not allow the cripple to testify that the "handicap of public opinion" is a greater obstacle than the loss of a limb. We must give the man

disabled in our service whole-hearted gratitude, but we must not pamper him and force him to lead a life of idleness. The United States national authorities have accepted the responsibility of re-educating the men injured in service, and the Government is already inaugurating vocational training. America may have physical cripples, but let her have no social and economic cripples resulting from her participation in this war for justice and humanity.

#### VOCATIONAL TRAINING IN WAR TIME.

In the "Publications of the Red Cross Institute for Crippled and Disabled Men," number 6 of series 1, is a description of "Tourvielle: A Trade School for War Cripples," by Gustave Hirschfeld. The article, written by one who has been so intimately connected with the school, gives a clear picture of that most worthy enterprise, and should act as an incentive to the general public to support similar institutions.

Edouard Herriot, Mayor of Lyons, first proposed vocational training for war cripples in an article in the *Paris Journal*, November, 1914. One week later, his plan for founding such a school in Lyons was approved by the municipal council of that city, and two weeks later, the school was opened. This school was established in an old building owned by the city. Before the renovation of the structure was quite complete, M. Herriot, with characteristic energy, had introduced his first pupil. The institution grew so rapidly that very soon a new school had to be provided, and in July, 1915, the second school was formally opened as the *École de Tourvielle*.

By October, applicants to the number of one hundred had been admitted; many had been turned away because accommodations were insufficient. Enlargement was again necessary. The Mayor and Board of Directors planned for the building of large wooden pavilions on the fourteen acres which the school owned. New courses were added. Each trade was to be housed in its own building. Everything is done for the health and comfort of the men. Sanitary conditions prevail throughout the grounds and buildings. Recreation, in the form of billiards and other similar amusements, is enjoyed by the pupils whose aptitudes and physical capaci-

ties permit it. The school budgets are now incorporated in the city budget, and the Mayor of Lyons appoints a board of directors who govern the institutions.

The Lyons schools for vocational training are open to men whose disability puts them in one of the first five classes eligible for discharge with pensions. Questionnaires must be filled out and considered before the applicant is admitted. When admitted, the pupil has a choice of a number of courses of which a few are: bookkeeping, stenography, typewriting, paper box making, book binding, toy making, goloshe making, tailoring, carpentering and cabinet making, fur work, manufacture of artificial limbs and orthopedic appliances, wireless telegraphy, and horticulture, given at the *École de Tourvielle*. The average length of courses is anywhere from six months for bead work, to eighteen for carpentering and tailoring. That the training may be not merely vocational, evening classes in regular school subjects are held. Instruction is given in French, history, geography, arithmetic, science, hygiene, and on the progress of the war.

Pupils are generally required to live at the school. Everything is furnished free. Pupils receive remuneration for their work; this pay is equal to the full value of the product minus 15%, deducted for running expenses of the school. Strict obedience to the rules of the school is insisted upon. Thrift is fostered so that when the men have completed their courses they are ready and able to start over again.

The practical results of the work begun by M. Herriot summarized. On June 18, 1917, three *ter Medical Service Corps* of the Council of war, had finished or were still serving an apprenticeship at *Tourvielle*. Some pupils left without finishing their courses because they were able to secure work immediately. Others were expelled for violation of rules concerning temperance and general conduct. All who remained were given a thorough training so that they have become "good workmen and useful citizens."

#### A FIVE MILLION ARMY MEANS FIFTY THOUSAND MEDICAL OFFICERS.

WITH an army of three million men in the field or in training and, as contemplated, an expansion of this force to five million men, the Surgeon-

General must have in the Medical Reserve Corps at last fifty thousand doctors.

The Medical Corps must keep apace in growth with the army expansion, and it behooves every doctor in the United States between the ages of 21 and 55, who is physically, morally and professionally fitted, to arrange, at the earliest possible moment, his personal affairs so as to offer his services to his country in the capacity of a medical officer.

The United States is in the war to do her part in winning the struggle and this can be accomplished only by a large and well trained body of troops adequately cared for by sufficient medical officers. The importance of the doctor's service and its relation to the successful outcome of the war cannot be underestimated.

As the mobile forces increase in size, so is there an expansion of base hospitals and other institutions for the care of the sick and wounded, and there should be no lack of officers when required to give to our patriotic boys that professional attention which is so essential.

It is well for the medical profession of the United States to realize at once that a Medical Reserve Corps of at least 50,000 doctors will be required to meet the demands of the Surgeon-General and upon which Corps he can draw for his medical officers.

We believe by this time that the profession of the country must be fully alive to the needs of the service, so let every doctor who is qualified feel that he is doing not only his patriotic duty in offering his services as a medical officer, but is relieving the tension of the Surgeon-General's office by placing at the command of the Chief Officer of the Medical Department an adequate force without the frequent beating of drums to supply the necessary number with each increase of the mobile forces.

If you have not already received an application blank for commission in the Medical Reserve Corps your nearest Examining Board or the editor of this journal will be glad to supply you.

#### MEDICAL NOTES.

**PUBLIC WARNED OF GRIP EPIDEMIC.**—An epidemic of influenza prevails among the sailors stationed at Commonwealth Pier, and the State Department of Health has issued a warning to

civilians to take such measures as they can to protect themselves from the expected spread of the disease. More than 350 cases have been unofficially reported from the pier within a week.

Dr. John S. Hitchcock, in charge of the division of communicable diseases, is reported to have said:

"Unless precautions are taken, the disease in all probability will spread to the civilian population of the city. The malady appears to be in the nature of old-fashioned grip. No deaths have occurred. The naval medical authorities who have the matter in charge are doing everything possible to control the outbreak.

"With a focus of infection of this size, it seems probable that the disease will escape into the civil community in spite of all efforts at control. People should be reminded that under these conditions, persons with coughs and colds are not choice companions, and that a good doctor is a friend. It should also be remembered that our past experience with this disease has shown the danger of persons suffering from it continuing at work or trying to return to their occupation sooner than safety dictates."

#### MEDICAL NOTES FROM ANCIENT MESOPOTAMIA.

—*The Lancet* has published recently the following information about the status of medicine in ancient Mesopotamia:

"Dr. Paul Haupt, of Johns Hopkins University, has, in the *United States Oriental Research Journal*, been giving a revised translation of the difficult cuneiform text in the *Annals of Assurbannipal*, king of Assyria, describing the illness of Teumman, king of Elam, with whom the Mesopotamians were at war. This record has been for the last 40 years differently rendered, and was thought to indicate that the disease was rabies, because one sentence is capable of being read as 'he behaved like a mad dog;' but Professor Haupt, after an elaborate discussion of the text from our knowledge, now so advanced, of the cuneiform vocabulary, and a comparison of the words with their congeners in other Semitic dialects, shows that the following is the correct translation. 'At that time he (Teumman) had an attack, his lip slavered, his eye rolled; wildness was imparted to it.' This version agrees quite closely with the malady being an epileptic



fit, for during an attack of morbus sacer the eyes roll wildly and the sufferer foams at the mouth. The ancients were agreed that such disease was specially inflicted by the gods, and in a further part of the inscription the origin of it is attributed to Assur and Ishtar.

"The existence of veterinary surgeons in very early times in Babylonia is disclosed by the ancient law code of King Hammurabi. This is confirmed by a cuneiform tablet, Bm. 362 in the British Museum, which, though much defaced, scholars can detect gave a list of plants useful for treating colic in the horse. One line reads, 'Plant for abdominal cutting pain in the horse.' Other lines read in Babylonian what is most nearly translated by '*Contunde in vino, ungue ad abdomen.*' This tablet probably presents the earliest known instance of cataplasms being utilized for treatment of colic of the horse.

"Dr. Felix von Oefele, whose residence appears now to be in New York, has been writing in the *Journal of the American Oriental Society* upon a Babylonian statuette of the jerboa, or Egyptian jumping mouse, especially with regard to the accurate representation of zoological details showing careful morphological observation. The double length of the tibia in comparison with the femur is carefully copied. The animal is still to be found in the Western Babylon desert, and doubtless it was there, and not in the Sinai peninsula, that the artist obtained the specimen he copied."

#### WAR NOTES.

**APPOINTMENTS IN THE MEDICAL RESERVE CORPS.**—The following appointments in the Medical Reserve Corps have been announced:

Major: Hunter Robb, Winchester.

Captains: William G. Curtis, Wollaston; James S. King, St. Albans, Vt.; John J. McNamara, Brockton; David L. Martin, Dorchester.

First Lieutenants: Robert E. Andrews, Cambridge; William M. Collins, Lowell; Alexander S. MacMillan, Boston.

**DR. CALLAHAN APPOINTED CAPTAIN.**—Dr. John F. Callahan of Brockton has been commissioned a captain in the Medical Reserve Corps and is awaiting a call. He was born in Marlboro, and is a graduate of Tufts Medical School. He attended, also, Brown University and Manhattan College and spent one year

in Vienna. He has practiced in Brockton for several years.

**GERMANS BOMB RED CROSS HOSPITAL.**—German aviators recently bombed the large "Red Cross" between the wings of the French-American Hospital southwest of Soissons. There were no casualties, as the patients were removed to caves when the bombing began, soon after dark.

Eighteen bombs were dropped, two striking the Red Cross, which is built of red in a great field of white. When the alarm was sounded the attention of attendants was turned to the wounded who were taken to caves. The slightly wounded retired without aid and there were several instances of slightly wounded patients assisting the attendants in carrying the seriously wounded to places of safety. The first bomb struck near a tent and two others struck the Red Cross.

Owing to the darkness, due to the extinguishing of all lights, there was great confusion, but not a single patient or attendant was injured. Hospital doctors related with pride the bravery of the women nurses and the number of instances where nurses went to and fro from the caves to the hospital beds during the raid to make sure that all of the patients were under shelter.

**GERMAN PRISONERS DIE IN TYPHOID EPIDEMIC.**—Eighteen German prisoners at the internment camp at Hot Springs, N. C., have died of typhoid in an epidemic of 177 cases, the War Department announces. All the patients have been transferred to army general hospital No. 12 at Biltmore, N. C., and all remaining prisoners at the camp have been transferred to the internment camp at Fort Oglethorpe, Ga.

#### BOSTON AND MASSACHUSETTS.

**WEEK'S DEATH RATE IN BOSTON.**—During the week ending Sept. 7, 1918, the number of deaths reported was 179, against 230 last year, with a rate of 11.90, against 15.53 last year. There were 27 deaths under one year of age, against 66 last year.

The number of cases of principal reportable diseases were: diphtheria, 27; scarlet fever, 7; measles, 5; whooping cough, 25; typhoid fever, 9; tuberculosis, 34.

Included in the above were the following

cases of non-residents: diphtheria, 1; whooping cough, 1; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 3; whooping cough, 2; typhoid fever, 1; tuberculosis, 16.

Included in the above were the following non-residents: typhoid fever, 1; tuberculosis, 1.

### NOTICE.

The Physicians of Somerville have dropped morning office hours and have adopted uniform hours of two in the afternoon and seven in the evening, excepting Sundays and Holidays.

Office hours are reserved for office patients, other hours are for house visits. Owing to the extra demands on physicians, they cannot see patients except according to schedule.

Your physician is so busy that if you call him late in the day he may not be able to see you until the next day. Please call him early so as to save the increased tax on his strength which necessitates an increased fee.

Do not call your doctor in a hurry or expect him to do night work except in emergencies.

Help the doctor by following these rules that he may be able to help you.

*Somerville Medical Society.*

### Miscellany.

#### VOLUNTEER MEDICAL SERVICE CORPS. MASSACHUSETTS EXECUTIVE COMMITTEE.

The Central Governing Board of the Volunteer Medical Service Corps of the Council of National Defense announces that the Massachusetts State Executive Committee of the Volunteer Medical Service Corps is composed of the following doctors:

Walter L. Burrage, M.D., 42 Eliot St., Jamaica Plain, Boston.

J. Emmons Briggs, M.D., Boston.

E. A. Bates, M.D., 55 Chestnut St., Springfield.

Forest G. Martin, M.D., Lowell.

Walter P. Bowers, M.D., Chairman, 1 Beacon St., Boston.

Henry Jackson, M.D., 380 Marlborough St., Boston.

Frederick B. Percy, M.D., 194 Aspinwall Ave., Brookline.

F. W. Anthony, M.D., 50 Merrimack St., Haverhill.

The purpose of this committee is to cooperate with the Central Governing Board in prosecuting all activities pertaining to the mobilization and enrollment of members of the Volunteer Medical Service Corps throughout the state.

The Central Governing Board of the Volunteer Medical Service Corps also authorizes the appointment of one county representative in each county in every state of the Union. The county representatives for Massachusetts are as follows:

MASSACHUSETTS		
<i>Barnstable</i>		
John P. Nickerson		W. Harwich
<i>Berkshire</i>		
Henry Colt	193 South St.	Pittsfield
<i>Bristol North</i>		
F. A. Hubbard	157 High St.	Taunton
<i>Bristol South</i>		
Charles A. Pratt	60 Orchard St.	New Bedford
<i>Essex North</i>		
I. J. Clarke	112 Emerson St.	Haverhill
<i>Essex South</i>		
W. T. Hopkins	7 Atlantic St.	Lynn
<i>Franklin</i>		
H. G. Stetson	17½ Federal St.	Greenfield
<i>Hampden</i>		
Frederick B. Sweet	81 Chestnut St.	Springfield
<i>Hampshire</i>		
E. W. Brown	39 Main St.	Northampton
<i>Middlesex East</i>		
E. S. Jack	56 W. Emerson St.	Melrose
<i>Middlesex North</i>		
Chas. E. Simpson	9 Central St.	Lowell
<i>Middlesex South</i>		
George T. Tuttle	McLean Hospital	Waverley
<i>Norfolk</i>		
E. N. Libby	1960 Columbus Av.	Roxbury
<i>Norfolk South</i>		
J. H. Ash	239 Copeland St.	West Quincy
<i>Plymouth</i>		
Gilman Osgood	258 Union St.	Rockland
<i>Worcester</i>		
M. F. Fallon	390 Main St.	Worcester
<i>Worcester North</i>		
W. F. Sawyer	67 Prichard St.	Fitchburg

#### VOLUNTEER MEDICAL SERVICE CORPS.

Mr. Editor:—

In response to numerous requests the accompanying report of the Committee on Classification of the Central Governing Board, Volunteer Medical Service Corps, Washington, is printed. The Rules and Regulations of the Corps appeared in the *Journal* of August 22, 1918, pages 283-284.

W. L. BURRAGE, Secretary.

REPORT OF COMMITTEE ON CLASSIFICATION OF THE  
MEDICAL PROFESSION AND RECOMMENDATION  
THAT MEMBERS OF THE VOLUNTEER MEDICAL  
SERVICE CORPS BE ENROLLED UNDER THE FOLLOWING  
CLASSES AND RULES.

All registered physicians of the United States who are not attached to a Government Service may apply for membership in the Volunteer Medical Service Corps.

All applicants are to be admitted to the Volunteer Medical Service Corps if qualified under the rules of organization.

**Class 1.** All members in Class 1 will be the first called upon by the Central Governing Board to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with not more than one dependent in addition to self.

(b) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and who have an income or whose dependents have an income sufficient for the support of dependents other than that derived from the practice of their profession.

Exceptions in Class 1.

(a) *Essential to Communities.*—Essential to communities to be established by the Central Governing Board on recommendation of representatives of the Central Governing Board, appointed by the Central Governing Board, to make a survey of local conditions.

(b) *Essential to Institutions.*—Essential institutional needs to be established after conference between representatives of the Central Governing Board of the Volunteer Medical Service Corps and representatives appointed by governing bodies of the institutions concerned.

(c) *Essential to Health Departments.*—Essential to Departments of Health to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps, and Heads of Health Departments.

(d) *Essential to Medical Schools.*—Essential teachers in Medical Schools to be established by the Central Governing Board.

(e) *Essential to Industries.*—Essential to

Industries to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and accredited representatives of industries concerned.

(f) *Essential to Local and Medical Advisory Boards.*—Essential to Local and Medical Advisory Boards to be established after conference between representatives of the Central Governing Board, Volunteer Medical Service Corps and representatives of the Provost Marshal General's Office.

**Class 2.** All members in Class 2 will be called upon by the Central Governing Board, when the need exists, to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with not more than three dependents in addition to self.

Exceptions in Class 2.

(a) *Essential to Communities.*

(b) *Essential to Institutions.*

(c) *Essential to Health Departments.*

(d) *Essential to Medical Schools.*

(e) *Essential to Industries.*

(f) *Essential to Local and Medical Advisory Boards.*

**Class 3.** All members in Class 3 will be called upon by the Central Governing Board, when the need exists, to apply for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, or for appointment in the Public Health Service, and will be classified under the following rules:

(a) Physicians under 55 years of age, who are without an obvious physical disability which is disqualifying, and with more than three dependents in addition to self.

Exceptions in Class 3.

(a) *Physicians essential to Communities.*

(b) *Essential to Institutions.*

(c) *Essential to Health Departments.*

(d) *Essential to Medical Schools.*

(e) *Essential to Industries.*

(f) *Essential to Local and Medical Advisory Boards.*

**Class 4.** Physicians in Class 4 are ineligible for commissions in the Medical Reserve Corps of the Army, Reserve Force of the Navy, but are available for all other services, when the

need exists, upon the direct authority of the Central Governing Board, and are classified under the following rules:

- (a) Physicians over 55 years of age.
- (b) Physicians with an obvious physical disability which is disqualifying.
- (c) Physicians rejected for all Government Services because of physical disability.
- (d) Women Physicians.

NOTE.—Physicians not professionally eligible for the Medical Reserve Corps of the Army or Reserve Force of the Navy, or for appointment in the Public Health Service will be recorded but not admitted to the Volunteer Medical Service Corps.

### Correspondence.

#### BIRTH DECLINE. A SUGGESTED REMEDY.

Haverhill, Mass., Sept. 6, 1918.

Mr. Editor:

In reading the article on declining birth rate in your Journal, several reasons entered my mind. I have in mind several families of large numbers whom all the neighbors pity. How often have I heard a neighbor remark, "What is she going to do with this one coming?" The father of such families is generally not very skilled in labor and may earn only \$15 to \$25 a week. This sum is insufficient for a family of 6 or 8. The result is generally a neglect of the children. They are underfed and kept in unsanitary homes. The sleeping rooms are overcrowded and poorly ventilated.

If the father and mother had no children they would get along very comfortably.

The cost of attention to a mother in labor is \$70 at the lowest. If they go to the hospital in some cities they must either pay or become paupers.

How long is such a condition to remain. With the loss of males in this war we need immediate relief. It is a State question as well as a national one. Why should a woman, who is raising a family, be pitied while a "lady" of forty without any be considered lucky.

While we cannot correct this condition by law entirely we can help the women who are willing to do their duties as mothers.

Let the State allow each woman who brings a child into the world three dollars a week. Increase this to four dollars when the third child arrives and five dollars when the sixth appears. Then the exclamation will change and instead of "what a pity" we have "what great luck." Many families

will increase and the worry of where food and clothes are coming from for the next arrival will disappear. I am getting tired of borrowing a shirt from one neighbor, a towel or diaper from another and so on. Can't the society recommend legislation the same as it can pure food laws. It is one of the things that must be attended to or instead of a decline it will be an abrupt halt.

Yours P. NETTLE, M.D.

### NOTICES.

DIAGNOSTIC LABORATORY SERVICE.—Because the war has caused the withdrawal of so many physicians from private practice, the Boston Dispensary wishes to extend its usefulness to patients of moderate means by offering diagnostic laboratory service to their physicians. By so doing, it does not intend to compete with private laboratories. Fees charged are to cover the cost of service. A schedule will be furnished to any physician.

This diagnostic service may be obtained in the following ways:

- (1) Specimens may be submitted directly by the physician.
- (2) If preferred, patients may be sent with a note to the Laboratory indicating the character of the examination desired. Time for receiving patients is daily from 2.00 to 4.00, except Saturdays, Sundays and holidays; patients will also be seen on Mondays, Wednesdays and Fridays from 6.30 to 7.30 P.M.; other times by special appointment.
- (3) Upon the physician's request, an assistant will visit the home or an institution to obtain the desired specimen. The charge for this service will be seventy-five cents per hour.

In all instance reports will be promptly sent to the physician only. Whenever it is desired, the physician may consult with the pathologist, Dr. William A. Hinton, regarding the interpretation of reports.

Where the patient cannot afford to pay the schedule fee, an adjustment will be made in accordance with the financial condition.

MICHAEL M. DAVIS, JR., Director,  
Boston Dispensary.

### MARRIAGES.

DR. ANNE L. HOOVER, of West Somerville, and DR. ALEXANDER STEWART MACMILLAN, assistant roentgenologist at the Boston City Hospital and an instructor in clinical medicine at Tufts Medical School, were recently married. Dr. Macmillan will enter the medical corps as a roentgenologist within a few days. Both Dr. and Mrs. Macmillan are graduates of Tufts Medical School.

### APPOINTMENT.

LLEWELLYN H. ROCKWELL, M.D., has been appointed resident physician at Long Island Hospital, to succeed Dr. Arthur L. Kinne.